

REMARKS

In the office action, the Examiner (1) objected to the drawings, (2) objected to the specification for informalities, (3) objected to the claims for informalities, (4) rejected claims 12 and 20-26 under 35 U.S.C. § 112, first paragraph, (5) rejected Claims 1, 3-8, 10, 11, and 27-30 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,271,798 issued to Sandhu et al. ("Sandhu"), (6) rejected Claims 13, 16, 17 and 19 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,000,980 issued to Baldi et al. ("Baldi"), (7) rejected Claims 2, 9, 12, 31 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Sandhu, and (8) rejected Claims 14, 15, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Baldi. Reconsideration and allowance of the application, as amended, are requested.

I. Drawing Objections

The Examiner objected to the drawings for not including reference numeral 14 mentioned in the description. FIGURE 1 has accordingly been amended to include reference numeral 14, which refers to the thin conductive structure formed in strips 14a, 14b, and 14c as indicated on page 1 of the specification. No new matter has been added by this amendment.

The Examiner also objected to the drawings, stating that reference numeral 28 is shown in the drawings, but is not mentioned in the specification. However, reference numeral 28 is mentioned in the specification on, e.g., page 3, lines 10-11.

The Examiner also objected to the drawings, stating that certain claim limitations are not shown in the drawings. With respect to Claims 1, 8, 13 and 17, the Examiner refers to claim language relating to locally applying an etchant or selectively directing an etchant. These limitations are however shown in the drawings. For instance, they are shown in FIGURE 2 and described in the specification on page 8, lines 2-3, which provides: "The localized etching is preferably performed by spraying wet etchant over

the alignment marks, e.g., in zones indicated in phantom by reference numeral 108.”
The limitations are also shown in FIGURE 3 with respect to the elongated spray zones 112. (see also specification page 8, lines 22-24).

With respect to Claims 20 and 25, the Examiner states that the “openings” must be shown. These openings are, however, shown in Fig. 1 as defined by the extraction structure 22 and the insulating structure 20. The openings expose the micropoints 18.

With respect to Claim 27, the Examiner states that the limitations of spraying a wet etchant and rinsing a residual etchant are not shown in the drawings. As indicated above, this is shown in FIGURES 2 and 3 with respect to the zones 108 and 112, which are shown in phantom and indicate the spraying of wet etchant and rinsing of residual etchant.

II. Objections to Specification

The Examiner objected to the specification for not including a government contract number. The specification has accordingly been amended to include this information.

III. Objections to Claims

The Examiner objected to Claims 1, 8, 27 and 31 for certain informalities. With respect to Claims 1, 8 and 27, the Examiner stated that the claim structure does not conform to standard US practice and is difficult to interpret. Claims 1, 8 and 27 have accordingly been amended for formality to more readily identify the preamble, transition word and main body of the respective claims.

The Examiner objected to Claim 31 for lacking antecedent basis for the term “field emission display.” This claim has been amended to instead specify a flat panel display to overcome this rejection.

IV. § 112 Rejections

With respect to Claim 12, the Examiner states that "high resolution area" is not defined in the specification. The term high resolution area means an area containing high resolution or fine features or structures. See, e.g., page 8, lines 5-9. For clarification, Claim 12 has been amended to specify that the central active display area includes components of higher resolution than those of said peripheral area.

The Examiner stated that with respect to Claims 20 and 25, the specification does not describe forming alignment marks on a peripheral area of the substrate. The Examiner questioned how locally applying a wet etch will remove alignment marks without permanently damaging the substrate. As indicated in the specification, alignment marks are structures on FED substrates that are used, e.g., by steppers to precisely align different masks used in sequential photolithographic steps. (page 7, lines 11-13). Processes for forming such alignment marks are well known in the art. The present application is directed to methods of clearing the alignment marks of material deposited thereon, not to removing the alignment marks themselves.

II. § 102(b) Rejections

The Examiner rejected Claims 1, 3-8, 10, 11 and 27-30 as being anticipated by Sandhu. Each of these claims is directed to a method of making a flat panel display or a field emission device. Claim 1, e.g., specifies in a method for manufacturing a flat panel display device, a method for selectively removing material covering a structure in the device. The steps of the method include locally applying the etchant on the material covering the structure for removing the material to facilitate further processing in manufacturing said flat panel display. Sandhu does not disclose or in any way relate to manufacturing flat panel displays or field emission devices. The claims are accordingly patentable over Sandhu.

Claim 6 specifies spraying a wet etchant from a nozzle while moving one of the nozzle and the device relative to the other. Sandhu discloses an enclosed etchant dispensing apparatus 21 that is aligned to and placed on the wafer in a leak proof position. (col. 3, lines 13-19). There is no teaching of dispensing wet etchant while moving one of the dispensing apparatus and the wafer relative to the other. Claim 6 is therefore patentable over Sandhu. Claim 31 is similarly patentable over this reference.

Claim 7 specifies that the device includes a central active region and an outer region, wherein the structure is located in the outer region, and wherein said central active region includes structures of higher resolution than those in said outer region. The cited prior art does not disclose these limitations.

Claim 28 specifies that the structure comprises a bond pad. Sandhu does not disclose removal of material covering bond pads.

The Examiner rejected Claims 13, 16, 17 and 19 as being anticipated by Baldi. The Examiner contends that Baldi discloses locally applying an etchant to uncover a structure (9) in the peripheral area of the cathode assembly. Baldi discloses an "overstructure" 9 deposited on a "lift-off" layer 6. The overstructure appears in the drawings to extend throughout the central active area of the device. The lift-off layer is wet etched to remove the overstructure. There is no disclosure of any suggestion whatsoever of locally applying an etchant to uncover the overstructure 9 or any other structure. A general wet etch process is used by Baldi. No need, much less any apparatus, is disclosed for local wet etching. In accordance with various embodiments of the present invention, localized etching is used to avoid the need for photolithography processes used in general etching, which can be costly, complex and time consuming.

Furthermore, the overstructure 9 in Baldi is located in the central active display area of the device. Claims 13 and 17 specify that the structure to be uncovered is

located in the peripheral area or region, which surrounds the central active display area of the device. Baldi does not disclose or in any way suggest uncovering structures located in a peripheral area or region.

In addition, with respect to Claims 14, 15 and 18, Baldi does not disclose or in any way suggest uncovering alignment marks or bond pads. Baldi does not even mention such structures, much less recognize any need to clear them. One skilled in the art would have no motivation to devise a method of clearing bond pads or alignment marks based on the teachings of Baldi. The claims are therefore patentable over the Baldi patent.

Claims 1-32 are pending in the present application. As the application is now believed to be in condition for allowance, issuance of a Notice of Allowance is respectfully requested.

Respectfully submitted,



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Attachment: Replacement Drawing for Fig. 1
Annotated Drawing for Fig. 1